SEQUENCE LISTING

<110> Yoganathan, Thillainathan
Delaney, Allen

<120> CAMK-X1 and its Uses

<130> KINE024

<140> Unassigned
<141> 2001-09-20

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          Met Gly Arg Lys Glu Glu Asp Asp Cys Ser Ser Trp Lys Lys
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cag acc acc aac atc cgg aaa acc ttc att ttt atg gaa gtg ctg gga      159
Gln Thr Thr Asn Ile Arg Lys Thr Phe Ile Phe Met Glu Val Leu Gly
 15                  20                  25                  30

tca gga gct ttc tca gaa gtt ttc ctg gtg aag caa aga ctg act ggg      207
Ser Gly Ala Phe Ser Glu Val Phe Leu Val Lys Gln Arg Leu Thr Gly
                 35                  40                  45

aag ctc ttt gct ctg aag tgc atc aag aag tca cct gcc ttc cgg gac      255
Lys Leu Phe Ala Leu Lys Cys Ile Lys Lys Ser Pro Ala Phe Arg Asp
             50                  55                  60

agc agc ctg gag aat gag att gct gtg ttg aaa aag atc aag cat gaa      303
Ser Ser Leu Glu Asn Glu Ile Ala Val Leu Lys Lys Ile Lys His Glu
         65                  70                  75

aac att gtg acc ctg gag gac atc tat gag agc acc acc cac tac tac      351
Asn Ile Val Thr Leu Glu Asp Ile Tyr Glu Ser Thr Thr His Tyr Tyr
     80                  85                  90

ctg gtc atg cag ctt gtt tct ggt ggg gag ctc ttt gac cgg atc ctg      399
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Leu Val Met Gln Leu Val Ser Gly Gly Glu Leu Phe Asp Arg Ile Leu
 95                  100                 105                 110

gag cgg ggt gtc tac aca gag aag gat gcc agt ctg gtg atc cag cag      447
Glu Arg Gly Val Tyr Thr Glu Lys Asp Ala Ser Leu Val Ile Gln Gln
                115                 120                 125

gtc ttg tcg gca gtg aaa tac cta cat gag aat ggc atc gtc cac aga      495
Val Leu Ser Ala Val Lys Tyr Leu His Glu Asn Gly Ile Val His Arg
            130                 135                 140

gac tta aag ccc gaa aac ctg ctt tac ctt acc cct gaa gag aac tct      543
Asp Leu Lys Pro Glu Asn Leu Leu Tyr Leu Thr Pro Glu Glu Asn Ser
        145                 150                 155

aag atc atg atc act gac ttt ggt ctg tcc aag atg gaa cag aat ggc      591
Lys Ile Met Ile Thr Asp Phe Gly Leu Ser Lys Met Glu Gln Asn Gly
    160                 165                 170

atc atg tcc act gcc tgt ggg acc cca ggc tac gtg gct cca gaa gtg      639
Ile Met Ser Thr Ala Cys Gly Thr Pro Gly Tyr Val Ala Pro Glu Val
175                 180                 185                 190

ctg gcc cag aaa ccc tac agc aag gct gtg gat tgc tgg tcc atc ggc      687
Leu Ala Gln Lys Pro Tyr Ser Lys Ala Val Asp Cys Trp Ser Ile Gly
                195                 200                 205

gtc atc acc tac ata ttg ctc tgt gga tac ccc ccg ttc tat gaa gaa      735
Val Ile Thr Tyr Ile Leu Leu Cys Gly Tyr Pro Pro Phe Tyr Glu Glu
            210                 215                 220

acg gag tct aag ctt ttc gag aag atc aag gag ggc tac tat gag ttt      783
Thr Glu Ser Lys Leu Phe Glu Lys Ile Lys Glu Gly Tyr Tyr Glu Phe
        225                 230                 235

gag tct cca ttc tgg gat gac att tct gag tca gcc aag gac ttt att      831
Glu Ser Pro Phe Trp Asp Asp Ile Ser Glu Ser Ala Lys Asp Phe Ile
    240                 245                 250

tgc cac ttg ctt gag aag gat ccg aac gag cgg tac acc tgt gag aag      879
Cys His Leu Leu Glu Lys Asp Pro Asn Glu Arg Tyr Thr Cys Glu Lys
255                 260                 265                 270

gcc ttg agt cat ccc tgg att gac gga aac acg gcc ctc cac cgg gac      927
Ala Leu Ser His Pro Trp Ile Asp Gly Asn Thr Ala Leu His Arg Asp
                275                 280                 285

atc tac cca tca gtc agc ctc cag atc cag aag aac ttt gct aag agc      975
Ile Tyr Pro Ser Val Ser Leu Gln Ile Gln Lys Asn Phe Ala Lys Ser
            290                 295                 300

aag tgg agg caa gcc ttc aac gca gca gct gtg gtg cac cac atg agg     1023
Lys Trp Arg Gln Ala Phe Asn Ala Ala Ala Val Val His His Met Arg
        305                 310                 315
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aag cta cac atg aac ctg cac agc ccg ggc gtc cgc cca gag gtg gag     1071
Lys Leu His Met Asn Leu His Ser Pro Gly Val Arg Pro Glu Val Glu
    320                 325                 330

aac agg ccg cct gaa act caa gcc tca gaa acc tct aga ccc agc tcc     1119
Asn Arg Pro Pro Glu Thr Gln Ala Ser Glu Thr Ser Arg Pro Ser Ser
335                 340                 345                 350

cct gag atc acc atc acc gag gca cct gtc ctg gac cac agt gta gca     1167
Pro Glu Ile Thr Ile Thr Glu Ala Pro Val Leu Asp His Ser Val Ala
                355                 360                 365

ctc cct gcc ctg acc caa tta ccc tgc cag cat ggc cgc cgg ccc act     1215
Leu Pro Ala Leu Thr Gln Leu Pro Cys Gln His Gly Arg Arg Pro Thr
            370                 375                 380

gcc cct ggt ggc agg tcc ctc aac tgc ctg gtc aat ggc tcc ctc cac     1263
Ala Pro Gly Gly Arg Ser Leu Asn Cys Leu Val Asn Gly Ser Leu His
        385                 390                 395

atc agc agc agc ctg gtg ccc atg cat cag ggg tcc ctg gcc gcc ggg     1311
Ile Ser Ser Ser Leu Val Pro Met His Gln Gly Ser Leu Ala Ala Gly
    400                 405                 410

ccc tgt ggc tgc tgc tcc agc tgc ctg aac att ggg agc aaa gga aag     1359
Pro Cys Gly Cys Cys Ser Ser Cys Leu Asn Ile Gly Ser Lys Gly Lys
415                 420                 425                 430

tcc tcc tac tgc tct gag ccc aca ctc ctc aaa aag gcc aac aaa aaa     1407
Ser Ser Tyr Cys Ser Glu Pro Thr Leu Leu Lys Lys Ala Asn Lys Lys
                435                 440                 445

cag aac ttc aag tcg gag gtc atg gta cca gtt aaa gcc agt ggc agc     1455
Gln Asn Phe Lys Ser Glu Val Met Val Pro Val Lys Ala Ser Gly Ser
            450                 455                 460

tcc cac tgc cgg gca ggg cag act gga gtc tgt ctc att atg t           1498
Ser His Cys Arg Ala Gly Gln Thr Gly Val Cys Leu Ile Met
        465                 470                 475

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Ala Phe Ser Glu Val Phe Leu Val Lys Gln Arg Leu Thr Gly Lys Leu
        35                  40                  45
Phe Ala Leu Lys Cys Ile Lys Lys Ser Pro Ala Phe Arg Asp Ser Ser
    50                  55                  60
Leu Glu Asn Glu Ile Ala Val Leu Lys Lys Ile Lys His Glu Asn Ile
65                  70                  75                  80
Val Thr Leu Glu Asp Ile Tyr Glu Ser Thr Thr His Tyr Tyr Leu Val
                85                  90                  95
Met Gln Leu Val Ser Gly Gly Glu Leu Phe Asp Arg Ile Leu Glu Arg
            100                 105                 110
Gly Val Tyr Thr Glu Lys Asp Ala Ser Leu Val Ile Gln Gln Val Leu
        115                 120                 125
Ser Ala Val Lys Tyr Leu His Glu Asn Gly Ile Val His Arg Asp Leu
    130                 135                 140
Lys Pro Glu Asn Leu Leu Tyr Leu Thr Pro Glu Glu Asn Ser Lys Ile
145                 150                 155                 160
Met Ile Thr Asp Phe Gly Leu Ser Lys Met Glu Gln Asn Gly Ile Met
                165                 170                 175
Ser Thr Ala Cys Gly Thr Pro Gly Tyr Val Ala Pro Glu Val Leu Ala
            180                 185                 190
Gln Lys Pro Tyr Ser Lys Ala Val Asp Cys Trp Ser Ile Gly Val Ile
        195                 200                 205
Thr Tyr Ile Leu Leu Cys Gly Tyr Pro Pro Phe Tyr Glu Glu Thr Glu
    210                 215                 220
Ser Lys Leu Phe Glu Lys Ile Lys Glu Gly Tyr Tyr Glu Phe Glu Ser
225                 230                 235                 240
Pro Phe Trp Asp Asp Ile Ser Glu Ser Ala Lys Asp Phe Ile Cys His
                245                 250                 255
Leu Leu Glu Lys Asp Pro Asn Glu Arg Tyr Thr Cys Glu Lys Ala Leu
            260                 265                 270
Ser His Pro Trp Ile Asp Gly Asn Thr Ala Leu His Arg Asp Ile Tyr
        275                 280                 285
Pro Ser Val Ser Leu Gln Ile Gln Lys Asn Phe Ala Lys Ser Lys Trp
    290                 295                 300
Arg Gln Ala Phe Asn Ala Ala Ala Val Val His His Met Arg Lys Leu
305                 310                 315                 320
His Met Asn Leu His Ser Pro Gly Val Arg Pro Glu Val Glu Asn Arg
                325                 330                 335
Pro Pro Glu Thr Gln Ala Ser Glu Thr Ser Arg Pro Ser Ser Pro Glu
            340                 345                 350
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Ile Thr Ile Thr Glu Ala Pro Val Leu Asp His Ser Val Ala Leu Pro
        355                 360                 365
Ala Leu Thr Gln Leu Pro Cys Gln His Gly Arg Arg Pro Thr Ala Pro
    370                 375                 380
Gly Gly Arg Ser Leu Asn Cys Leu Val Asn Gly Ser Leu His Ile Ser
385                 390                 395                 400
Ser Ser Leu Val Pro Met His Gln Gly Ser Leu Ala Ala Gly Pro Cys
                405                 410                 415
Gly Cys Cys Ser Ser Cys Leu Asn Ile Gly Ser Lys Gly Lys Ser Ser
            420                 425                 430
Tyr Cys Ser Glu Pro Thr Leu Leu Lys Lys Ala Asn Lys Lys Gln Asn
        435                 440                 445
Phe Lys Ser Glu Val Met Val Pro Val Lys Ala Ser Gly Ser Ser His
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Cys Arg Ala Gly Gln Thr Gly Val Cys Leu Ile Met
465                 470                 475
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